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(71) Applicant (for all designated States except US): **SAN-DISK 3D LLC** [US/US]; 601 McCarthy Boulevard, Milpitas, CA 95035 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **SCHEUERLEIN, Roy, E.** [US/US]; 601 McCarthy Boulevard, Milpitas, CA 95035 (US).

(74) Agent: **MAGEN, Burt**; Vierra Magen Marcus & DeNiro, LLP, 575 Market Street, Suite 2500, San Francisco, CA 94105 (US).

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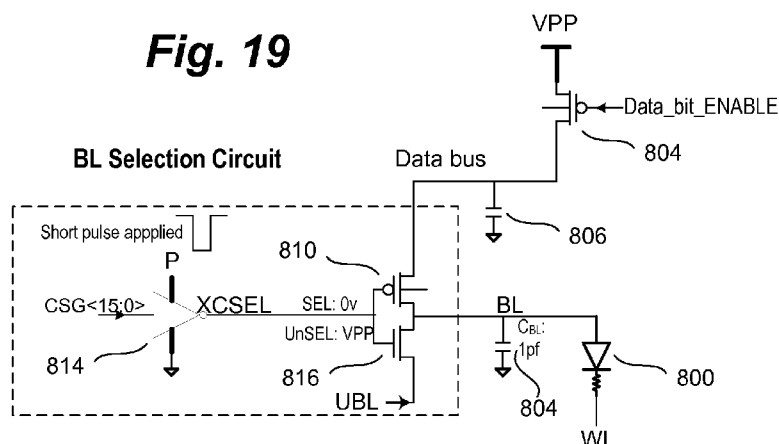
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- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:
18 February 2010

(54) Title: SHORT RESET PULSE FOR NON-VOLATILE STORAGE 19

Fig. 19



(57) Abstract: A non-volatile storage system includes a substrate, control circuitry on the substrate, a three dimensional memory array (above the substrate) that includes a plurality of memory cells with reversible resistance-switching elements, and circuits to SET and RESET the resistance-switching elements. The circuits that RESET the resistance-switching elements provide a pulse to the memory cells that is large enough in magnitude to SET and RESET the memory cells, and long enough to potentially RESET the memory cell but not long enough to SET the memory cells.

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/048956

A. CLASSIFICATION OF SUBJECT MATTER

INV. G11C13/00 G11C7/22 G11C7/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G11C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 886 577 A (BUCKLEY WILLIAM D) 27 May 1975 (1975-05-27)	1-3,8, 10,11,13
Y	columns 8-9; figures 1,2A-B,6 -----	9
X	US 2006/157679 A1 (SCHEUERLEIN ROY E [US]) 20 July 2006 (2006-07-20)	1-3, 8-11,13
Y	figures 2a-b,6-8,11 -----	9
A	US 2008/112218 A1 (KATAGIRI SATOSHI [JP]) 15 May 2008 (2008-05-15)	4,5
A	EP 1 326 258 A (ST MICROELECTRONICS SRL [IT]; OVONYX INC [US]) 9 July 2003 (2003-07-09)	4,5
	figure 5 -----	

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

14 September 2009

Date of mailing of the international search report

07/12/2009

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Havard, Corinne

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/048956

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5,8-11,13

Short reset pulse and pulsed bitline driver

2. claims: 6-7,12,14

Short reset pulse and verify operation

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/048956

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